



05-19-03

1773

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

LIN et al.

Serial No.: 10/052,621

Filed: January 17, 2002

Atty. File No.: 3123-297

For: "STORAGE MEDIA WITH
NONUNIFORM PROPERTIES"Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Group Art Unit: 1773

Examiner: BERNATZ, KEVIN M

RESPONSE TO
RESTRICTION REQUIREMENT"EXPRESS MAIL" MAILING LABEL NUMBER: EV331285442US
DATE OF DEPOSIT: 5/15/03I HEREBY CERTIFY THAT THIS WITH THE UNITED STATES
POSTAL SERVICE "EXPRESS MAIL POST OFFICE TO
ADDRESSEE" SERVICE UNDER 37 C.F.R. 1.10 ON THE DATE
INDICATED ABOVE AND IS ADDRESSED TO THE COMMISSIONER
FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

TYPED OR PRINTED NAME: Amy S. Duarte

SIGNATURE: RECEIVED
MAY 20 2003
TC 1700

Dear Sir:

In an Office Action dated April 16, 2002, the Examiner issued a Restriction Requirement with regard to the above-identified patent application. Generally, the Examiner indicated that the application contains claims directed to the following patentably distinct species of the claimed invention: a disk for information storage comprising:

- Species I: 1 or 2 recording parameters that vary radially outward; or
- Species II: a writing property that varies radially outward; or
- Species III: an underlayer which has a thickness that varies radially outward;
- or
- Species IV: an information layer which has a thickness that varies radially outward; or

- Species V: 1 or 2 recording parameters that vary radially outward and a chemical composition of the information layer which varies radially; or
- Species VI: 1 or 2 recording parameters that vary radially outward and a writing property that varies radially outward; or
- Species VII: a writing property that varies radially outward and an underlayer which has a thickness that varies radially outward; or
- Species VIII: 1 or 2 recording parameters that vary radially outward and an underlayer which has a thickness that varies radially outward; or
- Species IX: 1 or 2 recording parameters that vary radially outward and an information layer which has a thickness that varies radially outward.

Additionally, the Examiner requires the election of a single disclosed species from the following sub-species:

- Sub-species I: wherein the variation in the radial direction is substantially linear; or
- Sub-species II: wherein the variation in the radial direction is substantially rectilinear; or
- Sub-species III: wherein the variation in the radial direction is substantially curvilinear; or
- Sub-species IV: wherein the variation is discontinuous along the radial direction.

The Examiner, along with the election of a species and sub-species, requires a listing of the claims readable thereon.

Applicant respectfully traverses the Examiner's restriction requirement.

Under MPEP§803, an application may properly be required to be restricted to one of two or more claimed inventions only (i) if they are able to support separate patents (*i.e.*, they are either independent or distinct) and (ii) if there is a serious burden on the examiner if the restriction is not required. Inventions are independent when: (i) they represent two or more different combinations not disclosed as capable of use together, having different modes of operation, different functions or different effects or (ii) they are process and apparatus and the apparatus cannot be used to practice the process. MPEP§806.04. Inventions are distinct when: (i) a claimed combination does not require the particulars of the subcombination as claimed for patentability or (ii) the subcombination can be shown to have utility either by itself or in other and different relations. MPEP§806.05(c). A serious burden on the Examiner may be *prima facie* shown if the Examiner shows by appropriate explanation of the separate classification or separate status in the art or a different field of search as defined in MPEP§808.02. In any event, it still remains important from the standpoint of the public interest that no requirements be made which might result in the issuance of two patents for the same invention. MPEP§803.01

The various species identified by the Examiner are not separate and distinct as required by MPEP§803.

The present invention is directed to a storage media with at least substantially nonuniform properties to enhance performance of the media and/or provide a high areal bit density of the media. By using nonuniform properties, for example, the ID and OD regions can be configured differently

to provide optimum or near optimum disk properties for the differing operating conditions of the two regions.

As set forth in Claim 53, the disk has one or more (or all) of the following properties: (i) two or more recording parameters that vary radially, (ii) a writing property (e.g., the coercivity of magnetic materials) that varies radially, (iii) an underlayer having a thickness that varies radially which, in one configuration, causes a recording parameter (e.g., the coercivity) of the disk to vary radially, and/or (iv) an information layer having a thickness that increases from an inner disk diameter to an outer disk diameter, which, in one configuration, causes a recording parameter (e.g., magnetization-thickness product or Mrt) to vary radially.

As set forth in Claim 84, the disk comprises an information layer having (i) a first magnetic remanence (which is M_r in the equation Mrt) at a first inner radial location that is more than a second magnetic remanence of the information layer at a second outer radial location; (ii) a first magnetic moment (which is the same as the magnetization-thickness product) at the first inner radial location that is more than a second magnetic moment of the information layer at the second outer radial location; and/or (iii) a first coercivity at the first inner radial location that is less than a second coercivity of the information layer at the second outer radial location.

As set forth in Claim 106, the disk comprises an information layer in which a first recording parameter of the information layer at a first radial location is higher than the first recording parameter at a second, different radial location and a second recording parameter of the information layer at the first radial location is lower than the second recording parameter at the second radial location and in which the first and second first recording parameters are different from one another.

To understand that the above-identified claimed inventions are related and neither separate nor distinct, it is important to understand a preferred disk configuration. In this configuration, the two or more magnetic parameters of condition (i) include a magnetization-thickness product (Mrt) and a coercivity. Because the magnetization-thickness product is directly related to information layer thickness and the coercivity is directly related to underlayer thickness, the information layer thickness normally increases from the inner diameter to the outer diameter to provide a higher Mrt at the outer diameter while the underlayer has a thickness that normally decreases from the inner diameter to the outer diameter to provide a higher coercivity at the inner diameter.

For these reasons, Species I, namely a disk for information storage comprising one or two recording parameters that vary radially, is generic to limitations (i) through (iv) of Claim 53, (i) through (iii) of Claim 84, and Claim 106. Thus, by the Examiner's own admission, the various species identified by the Examiner are not separate and distinct as required by MPEP§803.

Moreover, Species I is generic to Species II-IX. Each of Species II, namely a writing property (or coercivity) that varies radially outward, Species III, namely an underlayer which has a thickness that varies radially outward (which will influence the coercivity); Species IV, namely an information layer which has a thickness that varies radially outward (which will influence the magnetization-thickness product or magnetic moment); Species V, namely 1 or 2 recording parameters that vary radially outward and a chemical composition of the information layer which varies radially (which will influence the magnetic remanence (Mr) and therefore the magnetization-thickness product (the product of Mr and the information layer thickness)); Species VI, namely 1 or 2 recording parameters that vary radially outward and a writing property (or coercivity) that varies radially outward; Species VII, namely a writing property (or coercivity) that varies radially outward and an underlayer which

has a thickness that varies radially outward (which will influence the magnetization-thickness product); Species VIII, namely 1 or 2 recording parameters that vary radially outward and an underlayer which has a thickness that varies radially outward (which will influence coercivity); and Species IX, namely 1 or 2 recording parameters that vary radially outward and an information layer which has a thickness that varies radially outward (which will influence the magnetization-thickness product) is a sub-species of Species I. As noted above, each of the coercivity and magnetization-thickness product or magnetic moment is a recording parameter.

Even assuming arguendo there is a degree of unrelatedness of two or more of the species, the Markush-type structure of Claim 53 requires concurrent examination of the species.

Claim 53 is phrased in a Markush-type structure. According to MPEP§803.02, “[i]f the members of the Markush group are sufficiently few in number or so closely related that a search and examination of the entire claim can be made without serious burden, the examiner *must* examine all the members of the Markush group in the claim on the merits, *even though they are directed to independent and distinct inventions*. (Emphasis added.) Thus, Claim 53, whose members include the recited elements of Claims 84 and 106, must be considered generic and no restriction requirement is proper.

There is no serious burden on the Examiner in searching and examining each of the alleged species together.

Because of the relatedness of the various alleged species, it is respectfully submitted that all of the alleged species can be searched by searching for prior art relevant to Species I. It is further submitted that this search can be conducted using the same field of search as defined in

MPEP§808.02. The Examiner, by failing to present separate classifications, statuses in the art, or fields of search, has not made a *prima facie* showing that a serious burden exists. MPEP§803

For these reasons, restriction is improper.

Subject to the above comments and in the event that the traverse of the restriction requirement is unsuccessful, Applicant conditionally elects to prosecute Species I (which corresponds to Claims 53-62, 70-78, 82-85, 99-102, and 106-125) and Sub-species I (which corresponds to Claim 78 and 102) in this patent application. However, Applicant respectfully reserves the right to pursue the remaining Sub-species in a subsequent divisional/continuation application.

Respectfully submitted,

SHERIDAN ROSS P.C.

By: 

Douglas W. Swartz
Registration No. 37,739
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: May 15, 2003